

## Subdivision of the Lützow-Holm Complex in East Antarctica

\*Tomokazu Hokada<sup>1,2</sup>, Daniel J. Dunkley<sup>1</sup>, Kazuyuki Shiraishi<sup>1,2</sup>, Yoshikuni Hiroi<sup>3,1</sup>, Yoichi Motoyoshi<sup>1,2</sup>

1. National Institute of Polar Research, 2. The Graduate University for Advanced Studies, SOKENDAI, 3. Chiba University

Neoproterozoic to early Paleozoic geologic evolution of East Antarctica is key for understanding of the final amalgamation of Gondwana supercontinent. The Lützow-Holm Complex in eastern Dronning Maud Land of East Antarctica is located within the Neoproterozoic-Cambrian suture zones continuing from India through Sri Lanka. All these areas experienced high-grade metamorphism at ~600-520 Ma (e.g., Shiraishi et al., 2008).

In this presentation, we summarize the currently available U-Pb ages of this area (see Table and Figure attached in this abstract), and propose the subdivisions of the Lützow-Holm Complex based on the protolith ages as follows (from southwest to northeast);

- Inhovde Unit (INH; 1070-1040 Ma),
- Rundvag Unit (RVG; 2520-2470 Ma),
- Skallevik Unit (SKV; 1830-1790 Ma),
- Langhovde Unit (LHV; 1100-1050 Ma),
- East Ongul Unit (EOG; 630 Ma), and
- Akarui Unit (AKR; 970-750 Ma).

As discussed in Shiraishi et al. (2008), one important issue of this area is Cape Hinode that is geographically located within Akarui Unit of the Lützow-Holm Complex. The rocks in Cape Hinode experienced the high-grade metamorphism at ~960 Ma that is significantly older than the surrounding Lützow-Holm rocks (~600-520 Ma). Cape Hinode is, therefore, independent (exotic) to the surrounding Lützow-Holm Complex, and is defined as “Hinode Block”. The boundary between Hinode Block and the surrounding Akarui Unit of the Lützow-Holm Complex is not clear. Further study is required to interpret Kasumi Rock and Niban Iwa either belonging to Akarui Unit or Hinode Block.

Although this presentation does not intend to do the correlation between Antarctica and Sri Lanka-India, the earlier correlation proposed by Shiraishi et al. (1994) requires only minor modification. Lithological and geochronological similarities imply some broad picture on the correlation among each geologic units in Antarctica, Sri Lanka and India (see Figure). For example, Botnnuten located in the southernmost part of the Lützow-Holm Complex is one isolated mountain exposed in the ice sheet, and is possibly klippe belonging to Rundvag Unit as like several isolated klippe (Highland Complex) located within the Vijayan Complex, Sri Lanka.

Figure: Regional geology, and the subdivision of the Lützow-Holm Complex.

Table: Summary of the published U-Pb ages for the Lützow-Holm Complex. Pink: metamorphic rocks (igneous origin), blue: metamorphic rocks (sedimentary origin), gray: intrusive rocks (syn/post-tectonic).

Keywords: East Antarctica, Lützow-Holm Complex, Gondwana, U-Pb age

